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Making Jelly

Isabel D. Wolf

Agricultural Extension Service
University of Minnesota

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Fruit jellies are semisolid, preserved mixtures of fruit juice and sugar. Jelly making is a good way to preserve fruit flavors for enjoyment throughout the year. Fruit jelly is a fairly easy-to-prepare product for the beginning canner and may be made at home without much special equipment.

Ingredients

Substances essential for fruit jelly making are fruit flavor, pectin, sugar, acid, and water. A pectin gel or jelly forms when a suitable concentration of pectin, sugar, acid, and water is achieved.

Fruit Flavor — The fruit flavor is provided by the fruit juice. For some fruit jelly, a mixture of different fruit juices is used. The fruit juice may also supply some or all of the pectin and acid. Fruit juice is the source of water in jelly.

Pectin — Fruits and their extracts obtain their jelly forming ability from a group of substances called pectins. Pectin provides the three dimensional structure which results in a jellied product.

Pectin is formed from a parent compound, protopectin, during the ripening of fruit and during the cooking of underripe fruit to extract juice. Fully ripe fruits contain less pectin than partially ripe fruits. For this reason, some jelly recipes specify the use of a portion of underripe fruit.

All fruits contain some pectin. Apples, crabapples, gooseberries, some plums, and highbush cranberries usually contain enough pectin to form a pectin gel. Other fruits, such as strawberries, cherries, or blueberries, contain little pectin and can be used for jelly only if

- combined with fruit rich in pectin — or
- combined with commercial pectin products (these methods are described under Short Boil jelly).

Test for Pectin — If jelly is to be made without added pectin, it is a good idea to test the pectin content of the fruit juice with this easy method. Measure 1 tablespoon of rubbing alcohol into a small glass. Add 1 tablespoon of extracted fruit juice and let stand 2 minutes.

If a good solid mass forms, enough pectin is naturally present in the fruit juice to form a pectin gel. If only a small weak mass forms, there is not enough pectin to form a gel and a commercial pectin should be used in the jelly making. **Do not taste this mixture.**

Isabel D. Wolf is an extension specialist, Foods and Nutrition.

Acid — A certain level of acidity (below pH 3.5) must be present for a jelly to form. If the fruit juice is not sufficiently acidic, a gel will not form. If too much acid is present, the jelly will lose liquid or weep.

Test of Acid: A rough index of the acidity of fruit juice is the juice's tartness. To form a gel, fruit juice should be as tart as a mixture of 1 teaspoon of lemon juice and 3 tablespoons of water. If the fruit juice is not this tart, add 1 tablespoon of lemon juice for each cup of fruit juice.

Commercial pectin products contain organic acids, like fumaric acid, which assure gel formation.

Sugar — Sugar helps in gel formation, contributes flavor to the jelly, and at the concentration of 55 percent by weight, serves as a preservative. Cane sugar or beet sugar (both sucrose) is the usual source of sugar in jelly or jam. Corn syrup or honey can replace part of the sugar in jelly recipes. The flavor of the fruit may be overcome if too much honey or corn syrup is substituted. To substitute honey or corn syrup for sugar use these amounts.

For no-pectin-added jelly — Corn syrup may replace ¼ of the sugar. Honey may replace ½ the sugar.

For pectin-added jelly — Powdered pectin — Corn syrup may replace up to ½ the sugar. Honey may replace up to 2 cups of sugar.

Liquid pectin — Corn syrup or honey can replace up to 2 cups sugar.

Do not attempt to reduce the amount of sugar called for in traditional recipes. Reduction in the amount of sugar will interfere with gel formation and result in a product in which yeasts and molds can grow.

Equipment

The following equipment may be needed depending on the method of jelly preparation:

Large, flat-bottom kettles (6 to 8 quart size)
Cheesecloth
Jelly bag and stand
Colander
Jelly or candy thermometer
Canning jars with 2-piece lids
or
Jelly jars and paraffin

Filling Jars and Heat Processing

Jellies, because of their high sugar content, may be canned by the open kettle method. In this method, jars must be sterilized.

A recent research study conducted at the University of Minnesota demonstrated that heat processing jelly for 5 to 15 minutes had no harmful effect on the products. Those tested included ones made with liquid and powdered pectin, as well as traditional no-pectin-added ones. In addition, the heat processing gives a better seal, and destroys mold that may be present on the top surface of the product.

FOR OPEN KETTLE CANNING

1. Use standard jars with 2-piece lids. Sterilize jars in boiling water for 10 minutes and keep hot. Have lids and screw bands ready in boiling water. Fill to ⅛ inch of top, seal immediately. Invert jar, then turn jars upright; check for seal in 12 hours.
2. Jelly jars with paraffin. Use paraffin only for firm products. Paraffin is flammable so be sure to melt it over hot water. Sterilize jars, keep hot. Fill to within ½ inch of top and cover with a thin layer, ⅛ inch, of paraffin.

FOR HEAT PROCESSING

1. Use standard jars with 2-piece lids. Have jars clean and hot. Pack product to within ½ inch of top and seal. Heat process for 5-15 minutes in boiling water bath canner. Count time from when water returns to boil.
2. Do not attempt to heat process paraffin sealed jars.

Nutritive Value of Jelly

Because of its high sugar content, jelly is mainly a source of calories and should be used sparingly by persons on weight control diets. One tablespoon of most jellies contains 50 calories.

A new product for making jelly and jam with a lower sugar content is available in supermarkets. It contains vegetable gums as thickening agents, preservatives to prevent yeast and mold growth, and organic acids for acidity control. The calorie-reduced jams and jellies made with this product must be stored in the refrigerator after opening.

Methods of Making Jelly

The two methods of making jelly follow:

Standard or Long Boil Method — Extracted juice and sugar are boiled long enough to form a gel. This method should be used only for fruits that contain an adequate amount of pectin. It is not possible to use commercially canned juices because they do not contain sufficient pectin. This type of jelly has a richer flavor than pectin-added jelly. The most difficult part of this method is knowing when the jelly is done.

Short Boil or Pectin-Added Jelly — Powdered or liquid pectin, sugar, and extracted juice are combined and quickly cooked to make a gel. Use extracted fruit juice from fresh fruit or commercially canned fruit juice. The order of combining ingredients depends on the type of pectin used. When making pectin-added jelly, it is most important to carefully follow the pectin product directions.

Pectin-added jelly uses more sugar and gives greater yield than jelly made by the standard method and avoids the need to test for doneness.

Here are the directions for making a jelly by each method. Many recipes for jelly products appear in cookbooks or the leaflets in pectin products. Check any recipe to determine which type it is before starting to prepare the jelly. When making jelly, work in small cooking lots. Don't try to double or triple the recipe. This often results in a very poor quality product.

STANDARD OR LONG BOIL

1. Prepare fruit and extract juice. Wash all fruits thoroughly before cooking. Use ¾ ripe and ¼ underripe fruit. Crush small fruits or berries. Cut larger fruits into small pieces. Be sure to use the peels and cores as they will give pectin when cooked. Some fruits require added water during the cooking period (chart 1). Cook the fruit in a broad kettle. Stir to prevent scorching. Crush soft fruits before cooking to start the flow of juice. Cook fruit until soft. Chart 1 gives approximate times. One pound of fruit should give at least 1 cup of good jelly juice.

Chart 1. Water to fruit proportions to obtain juice

Fruit and preparation	Amount of water to use for each pound of fruit	Minutes to cook fruit to extract juice*
Apples — cut in pieces	1 cup	20 to 25
Crabapples — cut in pieces	1 cup	20 to 25
Blackberries — crushed	none or ¼ cup	5 to 10
Gooseberries — crushed	¼ cup	5 to 10
Grapes — crushed or halved	none or ¼ cup	5 to 10
Plums — cut in pieces	½ cup	15 to 20

*Bring to a boil, then simmer.

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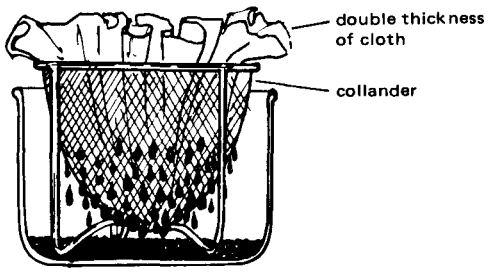
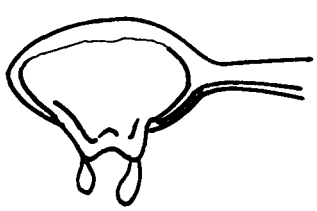


2. When the fruit is tender, strain through a double cheesecloth or jelly bag.[1] Do not squeeze. Allow this juice to drip through. Use a stand or colander to hold the cheesecloth or jelly bag.
3. Test for pectin and acid (described earlier).
4. Prepare jars as directed in processing method chosen. Put 6 to 8 cups of extracted fruit juice in a large 8-quart kettle.
5. Heat the juice and sugar to boiling. Determine the amount of sugar to use from chart 2. Stir the mixture until the sugar is dissolved. Boil rapidly to the jelly-ing point of 220° to 222°F. Determine with a jelly thermometer.

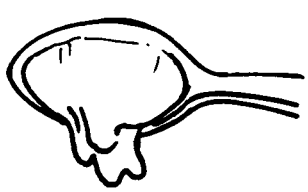
Chart 2. Amount of sugar and juice to use in making jelly (long boil method)

Fruit	Juice	Sugar
Apple	1 cup	¾ cup
Crabapple	1 cup	1 cup
Blackberries	1 cup	¾ to 1 cup
Gooseberries	1 cup	1 cup
Grapes, Concord	1 cup	¾ to 1 cup
Grapes, wild	1 cup	1 cup
Plums, wild	1 cup	¾ cup

The less dependable spoon or sheet test can be used to determine doneness. Dip a cool metal spoon into the boiling jelly mixture. Lift the spoon 12 inches above the kettle. Let the liquid run off the side of the metal spoon. The jelly is done when 2 big drops slide together and form a sheet that hangs from the edge of the spoon.



Drops show signs of sheeting



Jelly is sheeting and "done"

[1]Made from a square of flannel with 2 sides French seamed. Add loops to top so the bag can be hung.

Beginning jellymakers should use both a thermometer and the sheet test to determine doneness.

Remove from heat, skim off foam quickly. Pour jelly immediately into hot containers. Pack and process by open kettle or boiling water bath method previously described.

Test 2 piece lids for seal after 12 hours.

JELLY WITH ADDED PECTIN

If the extracted juice is lacking pectin, use a pectin-added product for making jelly. These products are available in either a liquid or a powder form. Follow the directions carefully because the order of combining ingredients depends on the type of pectin used.

Successful preparation of pectin-added jellies depends on accurate timing. Time should be counted when the mixture reaches a full rolling boil — one that cannot be stirred down.

Information sheets with commercial pectin products contain a great variety of jelly recipes. Check them for the quantities of sugar and fruit juice needed in each recipe. Don't double the recipes.

Plum Jelly with Liquid Pectin

4 cups plum juice
7½ cups sugar
1 packet or pouch of liquid pectin

1. Prepare jars as in long boil method.
2. Measure juice into large kettle. Stir in sugar.
3. Place on high heat and stir constantly; bring quickly to a full rolling boil.
4. Add pectin, bring to full rolling boil again. Boil hard for 1 minute.
5. Pour jelly immediately into hot containers and seal as directed under long boil method.

Plum Jelly with Powdered Pectin

5 cups plum juice
1 pkg. powdered pectin
7 cups sugar

1. Prepare jars as in long boil method.
2. Measure juice into large kettle. Add pectin. Stir well.
3. Place on high heat and stirring constantly, bring quickly to a full rolling boil.
4. Add sugar, continue stirring, and heat again to a full rolling boil. Boil hard for 1 minute.
5. Remove from heat; skim off foam quickly.
6. Pour jelly and seal as directed under long boil method.

When making jelly or jam from wild fruit, consult Food Science and Nutrition Fact Sheet 25, Using Minnesota's Wild Fruits.

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